

EXHIBIT 5

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA, OAKLAND DIVISION
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5 CHASOM BROWN, WILLIAM BYATT,
6 JEREMY DAVIS, CHRISTOPHER
7 CASTILLO, and MONIQUE
8 TRUJILLO, individually and on
9 behalf of all other similarly
10 situated,
11

12 Plaintiffs,

13 No.

14 vs.

15 4:20-cv-03664-YGR-SVK

16 GOOGLE LLC,
17

18 Defendant.
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_____ /

26 VIDEOTAPED DEPOSITION OF BRUCE SCHNEIER
27 Remote Zoom Proceedings
28 Cambridge, Massachusetts
29 Monday, July 18, 2022
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36 REPORTED BY:

37 LESLIE ROCKWOOD ROSAS, RPR, CSR 3462

38 Pages 1 - 233

39 Job No. 5312337

40 Page 1

<p>1 UNITED STATES DISTRICT COURT</p> <p>2 NORTHERN DISTRICT OF CALIFORNIA, OAKLAND DIVISION</p> <p>3</p> <p>4</p> <p>5 CHASOM BROWN, WILLIAM BYATT,</p> <p>6 JEREMY DAVIS, CHRISTOPHER</p> <p>7 CASTILLO, and MONIQUE</p> <p>8 TRUJILLO, individually and on</p> <p>9 behalf of all other similarly</p> <p>10 situated,</p> <p>11</p> <p>12 Plaintiffs,</p> <p>13 No.</p> <p>14 vs. 4:20-cv-03664-YGR-SVK</p> <p>15</p> <p>16 GOOGLE LLC,</p> <p>17</p> <p>18 Defendant.</p> <p>19 _____/</p> <p>20</p> <p>21 Videotaped deposition of BRUCE SCHNEIER,</p> <p>22 taken on behalf of Defendant, Remote Zoom Proceedings</p> <p>23 from Cambridge, Massachusetts, beginning at 11:03 a.m.</p> <p>24 Eastern Daylight Time and ending at 7:20 p.m. Eastern</p> <p>25 Daylight Time, on Monday, July 18, 2022, before</p> <p>Leslie Rockwood Rosas, RPR, Certified Shorthand Reporter</p> <p>No. 3462.</p> <p>Page 2</p>	<p>1 APPEARANCES (Continued):</p> <p>2</p> <p>3 MORGAN & MORGAN</p> <p>4 BY: JOHN A. YANCHUNIS, ESQ.</p> <p>5 201 North Franklin Street, 7th Floor</p> <p>6 Tampa, Florida 33602</p> <p>7 (813) 223-5505</p> <p>8 jyanchuis@forthepeople.com</p> <p>9</p> <p>10</p> <p>11 FOR THE DEFENDANT:</p> <p>12 QUINN EMANUEL URQUHART & SULLIVAN, LLP</p> <p>13 BY: STEPHEN A. BROOME, ESQ.</p> <p>14 ALYSSA (ALY) G. OLSON, ESQ.</p> <p>15 865 South Figueroa Street, 10th Floor</p> <p>16 Los Angeles, California 90017</p> <p>17 (213) 443-3285 (Mr. Broome)</p> <p>18 (213) 443-3000 (Ms. Olson)</p> <p>19 stephenbroome@quinnemanuel.com</p> <p>20 alyolson@quinnemanuel.com</p> <p>21</p> <p>22 Also Present:</p> <p>23 Elvert Ling, Quinn & Emanuel summer associate</p> <p>24 Haimin Zhang, Analysis Group</p> <p>25 Robert Fenton, Videographer</p> <p>Page 4</p>
<p>1 APPEARANCES:</p> <p>2</p> <p>3 FOR THE PLAINTIFFS:</p> <p>4 SUSMAN GODFREY LLP</p> <p>5 BY: IAN B. CROSBY, ESQ.</p> <p>6 1201 Third Avenue, Suite 3800</p> <p>7 Seattle, Washington 98101</p> <p>8 (206) 516-3861</p> <p>9 icrosby@susmangodfrey.com</p> <p>10 -and-</p> <p>11 BY: ALEXANDER P. FRAWLEY, ESQ.</p> <p>12 3201 Avenue of the Americas, 32nd Floor</p> <p>13 New York, New York 10019</p> <p>14 (212) 729-2044</p> <p>15 afrawley@susmangodfrey.com</p> <p>16</p> <p>17 BOIES SCHILLER FLEXNER LLP</p> <p>18 BY: HSIAO (MARK) C. MAO, ESQ.</p> <p>19 44 Montgomery Street, 41st Floor</p> <p>20 San Francisco, California 91401</p> <p>21 (415) 293-6800</p> <p>22 mmao@bsflp.com</p> <p>23</p> <p>24</p> <p>25</p> <p>Page 3</p>	<p>1 I N D E X</p> <p>2</p> <p>3</p> <p>4 MONDAY, JULY 18, 2022</p> <p>5</p> <p>6 WITNESS EXAMINATION</p> <p>7 BRUCE SCHNEIER</p> <p>8</p> <p>9 BY MR. BROOME 10</p> <p>10 BY MR. CROSBY 220</p> <p>11</p> <p>12</p> <p>13</p> <p>14 QUESTIONS WITNESS INSTRUCTED NOT TO ANSWER:</p> <p>15 (NONE)</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>Page 5</p>

<p>1 collected by companies such as Google by seeking refuge 2 in the promise and expectation of going Incognito online? 3 A. No. 4 Q. All right. Let's go to 86. 5 You say: "In the context" -- in the 15:13:31 6 second-to-last sentence. "And in the context of private 7 browsing, users have specifically signaled that they 8 expect their browsing sessions and the associated content 9 to be in fact private. That data point alone is private 10 in and of itself." 15:13:49 11 Do you see that? 12 A. I do. 13 Q. And the last sentence where you say "that data 14 point alone is private in and of itself," do you mean 15 that the fact that a user is in Incognito mode or private 15:14:00 16 browsing mode should be private? 17 A. You used the word "should." What do you mean be 18 "should"? 19 Q. Or is. I'm not sure. Is -- what -- when you 20 say "that data point," are you saying -- are you 15:14:11 21 referring to -- let me start over. 22 When you refer to "that data point" in the last 23 sentence of paragraph 86, are you -- do you mean the fact 24 that a user is in private browsing mode? 25 A. Yes. 15:14:31 Page 126</p>	<p>1 So the fact that you chose at that moment to 2 browse the web privately is, in fact, private 3 information. 4 Q. Okay. And then -- so if private browsing modes 5 were redesigned to indicate every time -- you know, to 15:16:23 6 websites every time somebody is in a private browsing 7 mode, do you think that would be a good thing or a bad 8 thing? 9 A. There's no question because it's mixed. Do I 10 want to tell The New York Times when I'm browsing 15:16:40 11 privately or not; right? So I'm designing off the top of 12 my head so do not take someone's random designs like 13 off-the-cuff as final. 14 I'd want to give users the choice of signaling 15 or not. But then, you know, on the other hand, you know, 15:17:00 16 is a user going to be sophisticated enough to be able to 17 do that well. That's going to be your balance. 18 But I can imagine times when I would want to 19 signal that and times when I wouldn't. 20 Q. If Google sent an email to a user, Google 15:17:35 21 account holder, and said -- that conveyed, you know, 22 this -- your device was used to browse in private, and 23 let's assume that device is a shared device, does that in 24 and of itself constitute an invasion of privacy? 25 A. So you're asking me if Google sends an email to 15:18:07 Page 128</p>
<p>1 Q. Okay. Next question: Do you -- is it your 2 opinion that the fact that a user is in Incognito mode 3 should be private? 4 A. So "should" is a hard -- is a tough word. When 5 you say "should," under what -- where does that "should" 15:14:48 6 come from? Should implies someone is making a judgment. 7 Q. Uh-huh. Okay. Do you think users have a 8 reasonable expectation of privacy in the fact that 9 they're in a private browsing mode? 10 A. I don't know. That's very different than 15:15:08 11 "should." 12 Q. So when you say that data point is private, what 13 do you mean? Do you mean -- are you talking about the 14 fact that browsers are designed not to indicate that the 15 user is in private browsing mode? 15:15:29 16 A. What I mean is that when a user signals that 17 they're wanting to go into a private browsing session, 18 that they want to do something on the internet and that 19 they don't want observed. 20 Q. I see. 15:15:44 21 A. The fact that they are doing that, that signal 22 is private information. I mean, if I know you did that 23 last Thursday at 4:00 p.m., and I then correlated with 24 what you were doing, I had your billing records from your 25 firm, I know your location data. 15:16:01 Page 127</p>	<p>1 your personal Gmail account -- 2 Q. Uh-huh. 3 A. -- and you access on a shared browser, does that 4 constitute an invasion of privacy? Am I reframing your 5 question right? 15:18:24 6 Q. Yeah, I think so. 7 A. I think it doesn't. 8 Q. And why is that? 9 A. It doesn't feel like it does. 10 Q. Well, it might not be you that was doing the 15:18:36 11 private browsing; right? 12 A. But it's my Gmail account. So wait, wait, wait 13 a second. So, yeah. See, this is why you do not accept 14 design decisions off the cuff in conversation; right? 15 Q. Fair enough. 15:18:52 16 A. Because it's all of this stuff. Stuff you have 17 to think about it, you've got to write it down and look 18 at the flows. Guess I would back off and say I don't 19 know. I'd need to think about it because you're right, 20 that is something you would have to consider. 15:19:09 21 Q. All right. Well, let's put it this way in more 22 general terms. 23 If Google alerted the owner of a shared device 24 that the other-- that someone else who uses that device 25 had been browsing in private, that in and of itself would 15:19:24 Page 129</p>


<p>1 be a privacy violation; right?</p> <p>2 A. Well, let's give an example. I am an abusive</p> <p>3 husband. We have a shared computer. My wife used</p> <p>4 private browsing. I got an email. I suspect she gets</p> <p>5 beat up over this. It feels like a privacy violation. 15:19:40</p> <p>6 Q. Okay. 87. You say: "When browsing the</p> <p>7 internet people often start on a search page and then</p> <p>8 click from that page to other websites. For example,</p> <p>9 someone might start with a Google search, then visit a</p> <p>10 non-Google website based on those search results. 15:20:11</p> <p>11 Information tied to that search term and subsequent</p> <p>12 browsing, including individual URLs and the record of an</p> <p>13 entire browsing session reveals a great deal of personal</p> <p>14 information about an individual."</p> <p>15 Do you see that? 15:20:24</p> <p>16 A. I do.</p> <p>17 Q. Would you agree that many people do not start</p> <p>18 their private browsing sessions by going and conducting a</p> <p>19 Google search?</p> <p>20 A. I don't have the data on that so I wouldn't 15:20:45</p> <p>21 necessarily agree to that.</p> <p>22 Q. Okay. Well, would you agree that if you want to</p> <p>23 keep your private browsing activity private from Google,</p> <p>24 then beginning your private browsing session with a</p> <p>25 Google search is probably not a good way to go about it? 15:21:01</p> <p style="text-align: right;">Page 130</p>	<p>1 A. Probably. Again, you know, it would take us a</p> <p>2 while to eliminate all circumstances. The one that came</p> <p>3 to mind, which I'm now wondering about, if you call 911</p> <p>4 on your smartphone, you know, and for some reason the</p> <p>5 call disconnected, it would be great if I could 15:23:24</p> <p>6 fingerprint your device and know your location</p> <p>7 immediately.</p> <p>8 Now thinking about that more, that's an invasion</p> <p>9 of privacy. It's one that will be welcome by the person</p> <p>10 who's being attacked and their cell phone is ripped out 15:23:35</p> <p>11 of their hands, but you know, there are always edge</p> <p>12 cases. So I hesitate to make -- to make those</p> <p>13 categoricals without really thinking about edge cases.</p> <p>14 Q. Okay. Does fingerprinting identify an</p> <p>15 individual or does it identify a device? 15:23:55</p> <p>16 A. Fingerprinting identifies a device, which -- and</p> <p>17 devices can identify individual.</p> <p>18 Q. Right. And would you agree that with this</p> <p>19 statement, this is from -- well --</p> <p>20 Just confirming something with my colleague. 15:24:30</p> <p>21 Devices may identify an individual, but they may</p> <p>22 just identify -- they may not. Is that --</p> <p>23 A. They may not. I mean, something we're learning</p> <p>24 over the past few years, it's easier than we thought to</p> <p>25 go from a device to an individual. 15:24:49</p> <p style="text-align: right;">Page 132</p>
<p>1 A. I certainly wouldn't do it, but you didn't ask</p> <p>2 me what I do. I'm three sigma.</p> <p>3 Q. Paragraph 84. You refer to fingerprinting</p> <p>4 techniques.</p> <p>5 A. Uh-huh. 15:21:56</p> <p>6 Q. Have you seen any evidence that Google has</p> <p>7 engaged in fingerprinting in this case?</p> <p>8 A. Yeah, I read internal documents that talk about</p> <p>9 fingerprinting and internal Google documents, but I don't</p> <p>10 think they actually said we do this particular practice. 15:22:19</p> <p>11 And other than that, no.</p> <p>12 Q. Would you agree that fingerprinting should</p> <p>13 generally be avoided?</p> <p>14 A. See, that's a hard question. You're back to</p> <p>15 "should generally be," by whom. Maybe your at the NSA, 15:22:37</p> <p>16 you want to do it; right? It's your job. That's what</p> <p>17 you get paid for. I might not like it personally. So</p> <p>18 who should be avoiding it?</p> <p>19 Q. No, that's a fair response. Let me ask it</p> <p>20 slightly differently. 15:22:54</p> <p>21 Would you agree that fingerprinting is an</p> <p>22 invasion of privacy?</p> <p>23 A. I think that device fingerprinting can be, yes.</p> <p>24 Q. Okay. Are there circumstances under which it</p> <p>25 would not be an invasion of privacy? 15:23:05</p> <p style="text-align: right;">Page 131</p>	<p>1 Q. In paragraph -- I'm sorry, in footnote 88, you</p> <p>2 say this article that you and Karen Levy wrote together?</p> <p>3 A. Yes.</p> <p>4 Q. Privacy Threats in Intimate Relationships?</p> <p>5 A. Yes. 15:25:20</p> <p>6 Q. And in that article, I think it's at page 10. I</p> <p>7 can show you the article, if you like. But we'll see if</p> <p>8 you need it.</p> <p>9 You say: "Households are not units, devices are</p> <p>10 not personal, the purchaser of a product is not its only 15:25:29</p> <p>11 user."</p> <p>12 Do you agree with those statements?</p> <p>13 A. Can I see it in situ.</p> <p>14 Q. Absolutely. Totally fair.</p> <p>15 A. Just to see it. Just to make sure. 15:25:40</p> <p>16 MR. BROOME: Yeah.</p> <p>17 (Exhibit 7, Journal of Cybersecurity, Research</p> <p>18 Paper, Privacy Threats in Intimate</p> <p>19 Relationships, by Karen Levy and Bruce Schneier,</p> <p>20 was marked for identification by counsel</p> <p>21 electronically.)</p> <p>22 THE WITNESS: Okay. I'm there.</p> <p>23 Q. BY MR. BROOME: Let me load it.</p> <p>24 A. The words sound familiar. Remind me where it</p> <p>25 is. 15:26:02</p> <p style="text-align: right;">Page 133</p>

<p>1 categorically say they're not speaking to -- to this, to 2 see what they say about other Google services that you 3 might use.</p> <p>4 Now this is saying you can choose a browser 5 using Chrome or Incognito mode, but it doesn't say 16:41:02 6 anything about other browsers. You don't even know they 7 exist if you just read this paragraph.</p> <p>8 Q. Okay. All right.</p> <p>9 Paragraph 283, you write: "Google's Chrome 10 Incognito Splash Screen has also promised privacy without 16:41:33 11 ever disclosing that Google collects users' private 12 browsing activity. Pairing the term Incognito with an 13 icon of a faceless person in disguise suggests that a 14 user in Incognito mode cannot be seen, traced, or tracked 15 while browsing online." 16:41:53</p> <p>16 Do you see that?</p> <p>17 A. Yes.</p> <p>18 Q. Are you an expert in iconography?</p> <p>19 A. I am not.</p> <p>20 Q. What expertise did you bring -- did you apply in 16:42:00 21 reaching this conclusion about pairing a term with a 22 particular icon?</p> <p>23 A. This is the expertise of me as a security and 24 privacy expert's understanding disclosures, understanding 25 dark patterns. Also relevant were the comments from 16:42:21</p> <p style="text-align: right;">Page 166</p>	<p>1 (Discussion off the record.)</p> <p>2 THE WITNESS: I said, "Unless it's an 3 invisibility suit," which is actually not a useful aside.</p> <p>4 Q. BY MR. BROOME: A disguise doesn't mean that a 5 user can't be traced; right? 16:44:45</p> <p>6 A. That is correct.</p> <p>7 Q. Or a disguise doesn't mean a user can't be 8 tracked; right?</p> <p>9 A. That is correct.</p> <p>10 Q. And as we discussed earlier, it means that a 16:44:58 11 person's identity is concealed; correct?</p> <p>12 A. That is correct. Although let's back up. If a 13 disguise is -- you know, you're disguised as a minion in 14 a sea of a thousand minions, you're not going to be 15 traced or tracked. 16:45:15</p> <p>16 So there are disguises which will prevent 17 tracing and tracking. They would be -- you know, a 18 disguise among everybody else. You know, let's go back 19 to the Tor browser. That's how that works. You are 20 amongst everybody else, and that's why you can't be 16:45:29 21 traced or tracked.</p> <p>22 Q. Let's take a look at paragraph 293.</p> <p>23 A. Uh-huh.</p> <p>24 Q. You say that: "Users may seek privacy and 25 anonymity when searching and browsing non-Google websites 16:46:07</p> <p style="text-align: right;">Page 168</p>
<p>1 Google employees saying that, hey, you know, this icon is 2 misleading.</p> <p>3 Q. Okay. And if we just limit it to your 4 expertise, all right, have you ever analyzed an icon 5 before to determine what, you know, message it sends to 16:42:42 6 consumers?</p> <p>7 A. How would you analyze an icon?</p> <p>8 Q. How did you analyze the icon in this particular 9 case?</p> <p>10 A. It's -- I think I've answered that. It's, you 16:42:56 11 know, based on what I know about the word, the images, 12 pairing, and you know, what we as security and privacy 13 professionals understand to be adequate disclosures.</p> <p>14 Q. Have you ever applied that expertise to an icon 15 before? 16:43:18</p> <p>16 A. Almost certainly.</p> <p>17 Q. Can you think of that example?</p> <p>18 A. I'm working on it. Nothing comes to mind, but 19 not promising I won't think of something as we go.</p> <p>20 Q. Okay. Okay. You describe the icon as a 16:43:36 21 faceless person in disguise. A disguise doesn't mean 22 you're invisible; right?</p> <p>23 A. It does not.</p> <p>24 MR. BROOME: All right. I think I interrupted 25 you there. 16:44:00</p> <p style="text-align: right;">Page 167</p>	<p>1 for information about ways to deal with or exit from an 2 abusive relationship. As discussed previously, abusers 3 often employ technological knowledge and means to control 4 their victims, including inspecting a shared computer or 5 their victim's computer or phone to spy on their online 16:46:23 6 activity. If detected by a tech-savvy abuser, searches 7 and the subsequent browsing activities tied to the 8 following searches could lead to domestic violence," and 9 you list a number of searches people might have run.</p> <p>10 Do you see that? 16:46:39</p> <p>11 A. I do.</p> <p>12 Q. Okay. How tech savvy would one need to be to 13 figure out somebody's Incognito searches, assuming the 14 user closes their Incognito sessions when they're done?</p> <p>15 A. So I haven't done forensic work in Google Chrome 16:46:54 16 and Incognito so I cannot answer that question.</p> <p>17 Q. Okay. I mean, sitting here today, are you aware 18 of any way that somebody outside of Google could 19 determine somebody's Incognito browsing or searches?</p> <p>20 A. Off the top of my head, I can think of a key 16:47:14 21 logger as one.</p> <p>22 Q. Okay. That's a third-party software?</p> <p>23 A. Software or hardware. You can use them both 24 ways.</p> <p>25 Q. That would record all of the key strokes on the 16:47:29</p> <p style="text-align: right;">Page 169</p>

<p>1 device; right?</p> <p>2 A. Yes.</p> <p>3 Q. Okay. Regardless of whether they're in</p> <p>4 Incognito or not; right?</p> <p>5 A. Yes. 16:47:37</p> <p>6 Q. Okay. So let's assuming -- let's assume the</p> <p>7 abuser is not particularly tech savvy. Incognito should</p> <p>8 prevent the abuser from finding -- from identifying the</p> <p>9 searches that somebody ran in Incognito?</p> <p>10 A. If it doesn't, we have some serious problems 16:47:56</p> <p>11 here. So let's assume it does.</p> <p>12 Q. Okay.</p> <p>13 MR. CROSBY: I'm sorry, I was on mute. I</p> <p>14 objected to the form of the question.</p> <p>15 Q. BY MR. BROOME: And I think we sort of touched 16:48:13</p> <p>16 on this earlier, but if one engaged in a fingerprinting</p> <p>17 analysis to identify this device as one that is engaged</p> <p>18 in private browsing, and then emailed the owner of that</p> <p>19 device, in this example, the abusive spouse, that it was</p> <p>20 used for private browsing, that might alert the abusive 16:48:33</p> <p>21 spouse that his wife had been doing research in private</p> <p>22 browsing mode to conceal something from him; right?</p> <p>23 A. Yes.</p> <p>24 Q. And that's a really legitimate concern; right?</p> <p>25 A. I think it is, yes. 16:48:48</p> <p style="text-align: right;">Page 170</p>	<p>1 to you.""</p> <p>2 Do you see that?</p> <p>3 A. I do.</p> <p>4 Q. And in fact, as far as you know, Google does not</p> <p>5 link any private browsing activity to individual users; 16:50:47</p> <p>6 correct?</p> <p>7 A. I know they can. I don't know if they actually</p> <p>8 do that.</p> <p>9 Q. Okay.</p> <p>10 A. We have a lot of incidental antidotes that they 16:50:57</p> <p>11 do.</p> <p>12 Q. Okay. So far as you know, Pachai's statement</p> <p>13 was accurate; right?</p> <p>14 A. No, I think it's inaccurate.</p> <p>15 Q. And why is that? 16:51:14</p> <p>16 A. I think for the reasons I talk about in the rest</p> <p>17 of that paragraph.</p> <p>18 Q. Okay. Let's look at that. You say: "Pichai's</p> <p>19 statement was incorrect in implying that while in</p> <p>20 Incognito mode, data regarding a user's browsing activity 16:51:28</p> <p>21 is not saved or linked to them, when in fact data is</p> <p>22 continuously collected from Chrome users whether they are</p> <p>23 browsing in normal or in Incognito mode."</p> <p>24 Do you see that?</p> <p>25 A. I do. 16:51:42</p> <p style="text-align: right;">Page 172</p>
<p>1 Q. Do you have an opinion as to whether the</p> <p>2 branding and marketing messages of other private browsing</p> <p>3 modes is misleading? Other meaning other than Incognito</p> <p>4 mode.</p> <p>5 A. I did not look at them in relation to this case. 16:49:05</p> <p>6 And that's not something I pay attention to. So right</p> <p>7 now, I don't.</p> <p>8 Q. You're a Firefox user; right?</p> <p>9 A. I am.</p> <p>10 Q. Have you ever used Edge? 16:49:15</p> <p>11 A. I have never used Edge.</p> <p>12 Q. In Firefox, do you ever use Incognito or their</p> <p>13 equivalent private browsing mode?</p> <p>14 A. I do not.</p> <p>15 Q. And why is that? 16:49:28</p> <p>16 A. Can you say asked and answered?</p> <p>17 Q. Is it because you don't have any shared</p> <p>18 computers?</p> <p>19 A. That's right.</p> <p>20 Q. Okay. Would you turn to paragraph 311. 16:49:37</p> <p>21 A. Uh-huh.</p> <p>22 Q. You write: "In May 2019, Google's CEO Sundar</p> <p>23 Pichai wrote an op-ed in The New York Times in which he</p> <p>24 described Incognito mode as a 'popular feature in Chrome</p> <p>25 that lets you browse the web without linking any activity 16:50:31</p> <p style="text-align: right;">Page 171</p>	<p>1 Q. Pichai doesn't say that data's not saved; right?</p> <p>2 A. No. They say that he says that you can browse</p> <p>3 the web without linking any activity to you.</p> <p>4 Q. Right.</p> <p>5 A. He's not saying that explicitly, but he's making 16:51:55</p> <p>6 a statement that when you browse the web using Incognito,</p> <p>7 data's not linked to you. And we know that data has been</p> <p>8 linked to people browsing in Incognito.</p> <p>9 Q. And you're talking about the antidotes that</p> <p>10 you've heard? 16:52:13</p> <p>11 A. Well, that have been testified to. More than</p> <p>12 I've heard.</p> <p>13 Q. Right. You're talking about the antidotes</p> <p>14 discussed in the testimony in this case?</p> <p>15 A. Yes. 16:52:24</p> <p>16 Q. Okay.</p> <p>17 MR. CROSBY: I'm sorry, could we take a real</p> <p>18 quick five-minute break here, please.</p> <p>19 MR. BROOME: Sure.</p> <p>20 MR. CROSBY: Thank you. 16:52:36</p> <p>21 THE VIDEOGRAPHER: Going off the record at</p> <p>22 4:53 p.m.</p> <p>23 (Recess.)</p> <p>24 THE VIDEOGRAPHER: We are back on the record at</p> <p>25 5:03 p.m. 17:03:20</p> <p style="text-align: right;">Page 173</p>

<p>1 details of what Google can do in fingerprinting. I think</p> <p>2 it's fair to say that some of it is probabilistic and</p> <p>3 some of it is exact, but you know, how probabilistic is</p> <p>4 it? Does it matter? Fingerprinting, it's like human</p> <p>5 fingerprints. Is probabilistic, yet it is highly 17:38:33</p> <p>6 accurate. So there's a lot of nuances in that that I</p> <p>7 don't know.</p> <p>8 Q. BY MR. BROOME: In paragraph 36, in the fourth</p> <p>9 sentence, you write: "Google recognizes the joinability</p> <p>10 risk posed by the collection of IP address information." 17:39:17</p> <p>11 Do you see that?</p> <p>12 A. I do.</p> <p>13 Q. Okay. IP addresses are -- are dynamic; right?</p> <p>14 MR. CROSBY: Object to the form.</p> <p>15 THE WITNESS: For most people, they are. 17:39:30</p> <p>16 Sorry.</p> <p>17 For most people, they are. For some people,</p> <p>18 they're static.</p> <p>19 Q. BY MR. BROOME: Okay. For most people, the IP</p> <p>20 address is -- IP address they're -- let me start again. 17:39:39</p> <p>21 For most people, their IP address changes</p> <p>22 periodically automatically; correct?</p> <p>23 A. Yes.</p> <p>24 Q. And do you have any idea as to the frequency</p> <p>25 with which their IP address changes? 17:39:52</p> <p style="text-align: right;">Page 186</p>	<p>1 A. Yes.</p> <p>2 Q. In paragraph 37, you talk about -- you say:</p> <p>3 "Another important tool for joinability is the user agent</p> <p>4 string."</p> <p>5 Do you see that? 17:41:29</p> <p>6 A. I do.</p> <p>7 Q. A user agent string can't always uniquely</p> <p>8 identify a user or even a particular device; correct?</p> <p>9 A. Say it again. I'm sorry.</p> <p>10 Q. A user agent string cannot necessarily be used 17:41:41</p> <p>11 to uniquely identify a user or device; correct?</p> <p>12 MR. CROSBY: Object to the form.</p> <p>13 THE WITNESS: A user agent string is something</p> <p>14 we do use to identify devices. You're asking does there</p> <p>15 exist a case in the history of the internet where it 17:41:59</p> <p>16 can't be used. Probably, yes.</p> <p>17 Q. BY MR. BROOME: Fair enough.</p> <p>18 What does a user agent string include?</p> <p>19 A. Oh, God. I don't remember.</p> <p>20 Q. Okay. 17:42:09</p> <p>21 A. Yeah. I actually don't remember. It's getting</p> <p>22 late.</p> <p>23 Q. Yep. Let me give you a hypothetical.</p> <p>24 Imagine you've got three people in a crowded</p> <p>25 coffee shop all working from the same IP address on the 17:42:30</p> <p style="text-align: right;">Page 188</p>
<p>1 A. No, I don't. I would look that up.</p> <p>2 Q. Okay. For most people, even their IP address</p> <p>3 they use at home is dynamic, and therefore, changes</p> <p>4 periodically; correct?</p> <p>5 MR. CROSBY: Object to the form. 17:40:17</p> <p>6 THE WITNESS: So now I'm saying I would start</p> <p>7 looking this stuff up.</p> <p>8 Q. BY MR. BROOME: Okay.</p> <p>9 A. Most people is more than half. So now we're</p> <p>10 talking about users. For some people, it's dynamic. For 17:40:27</p> <p>11 some people, it's static.</p> <p>12 Q. Okay.</p> <p>13 A. I'm willing to say that now. Anything else, I</p> <p>14 didn't research for this report, and I want to make sure</p> <p>15 I'm accurate before I tell you this. 17:40:37</p> <p>16 Q. For a mobile device, the IP address is going to</p> <p>17 depend on where the user is physically when they connect</p> <p>18 to the internet; correct?</p> <p>19 A. Yes.</p> <p>20 Q. So if they're at home using their mobile device, 17:40:54</p> <p>21 they might be using one IP address, and if they're at</p> <p>22 work, they would be using a different IP address, and if</p> <p>23 they're at the shopping mall, they might be using another</p> <p>24 different IP address.</p> <p>25 Is that all fair? 17:41:13</p> <p style="text-align: right;">Page 187</p>	<p>1 same latest Mac laptop, with the latest version of Chrome</p> <p>2 and using default settings.</p> <p>3 In that scenario, could you use IP address and</p> <p>4 user agent string to uniquely identify a device?</p> <p>5 MR. CROSBY: Object to the form. 17:42:53</p> <p>6 THE WITNESS: So using those two things alone --</p> <p>7 Q. BY MR. BROOME: Yes.</p> <p>8 A. -- and nothing else? So you don't know where</p> <p>9 they're browsing. You know nothing about their history.</p> <p>10 They appear out of thin error, like magically. You have 17:43:07</p> <p>11 a new laptop, same configuration. Open it up at the same</p> <p>12 time. Get three different dynamic IPs from the -- from</p> <p>13 the wireless access point. Visit the same website?</p> <p>14 Q. No, not visiting the same website.</p> <p>15 A. Visit three different websites. Close their 17:43:25</p> <p>16 computer, and then disappear into thin air. That's your</p> <p>17 hypothetical?</p> <p>18 Q. Let's start with that one.</p> <p>19 A. My guess is it would be hard. You know, if the</p> <p>20 FBI did it, I'd be impressed. I wouldn't be shocked. 17:43:42</p> <p>21 Q. Why does it matter whether you have access to</p> <p>22 their prior browsing history in that hypothetical?</p> <p>23 A. Well, in that hypothetical, there isn't any</p> <p>24 private browsing history. Right? They're appearing out</p> <p>25 of thin air -- 17:44:05</p> <p style="text-align: right;">Page 189</p>

<p>1 Q. Yeah.</p> <p>2 A. -- visiting the website, leaving. There's no</p> <p>3 history. It's just like one visit.</p> <p>4 Q. Yeah. So if you did have history, would that</p> <p>5 allow you to identify -- uniquely identify a device? 17:44:14</p> <p>6 MR. CROSBY: Object to the form.</p> <p>7 THE WITNESS: So it's a matter of degree. It's</p> <p>8 a matter of degree. History gives you more information.</p> <p>9 The more you know, the more able you are to identify</p> <p>10 somebody. 17:44:28</p> <p>11 So, you know, we're going to assume that the --</p> <p>12 the FBI is doing this investigation, is going to know</p> <p>13 something about who they're looking for. Does a person</p> <p>14 visit a website that they habitually visit? It's often</p> <p>15 not who you -- random people out of thin air. 17:44:44</p> <p>16 There's a lot of context in these questions.</p> <p>17 So, you know, the hypotheticals are hard. But the</p> <p>18 reality is, I think, much more subtle.</p> <p>19 Q. BY MR. BROOME: Okay. So if all you had was</p> <p>20 IP -- IP address and user agent string, could you -- 17:45:40</p> <p>21 could that be used to uniquely identify a user?</p> <p>22 A. So --</p> <p>23 MR. CROSBY: Object to the form.</p> <p>24 THE WITNESS: -- what you're asking me is if I</p> <p>25 hand you two pieces of paper, one has my IP address and 17:45:56</p> <p style="text-align: right;">Page 190</p>	<p>1 Do you see that?</p> <p>2 A. Yes.</p> <p>3 Q. Do you agree that although an IP address can be</p> <p>4 very precise, it can also be quite coarse?</p> <p>5 A. Yes. 17:47:50</p> <p>6 MR. CROSBY: Object to the form.</p> <p>7 THE WITNESS: Sorry.</p> <p>8 Q. BY MR. BROOME: Meaning that it may not identify</p> <p>9 much more than where -- what ZIP code a user is in?</p> <p>10 A. Yeah, I don't know about ZIP code. That's a 17:47:59</p> <p>11 geographical limitation. Because we're talking about</p> <p>12 network space, not physical space. Stick with coarse.</p> <p>13 Q. Okay. Okay. Paragraph 48.</p> <p>14 A. Uh-huh.</p> <p>15 Q. You say: "User-ID is tied to an individual's 17:49:18</p> <p>16 account with a non-Google website. User-ID itself</p> <p>17 thereby qualifies as personally identifiable</p> <p>18 information."</p> <p>19 Do you see that?</p> <p>20 A. No -- yes, I do. Sorry. Apologies. Yes. 17:49:34</p> <p>21 Q. Yeah, last sentence. Sorry. I should have been</p> <p>22 more precise.</p> <p>23 Do you see that? Okay.</p> <p>24 Although the User-ID is tied to an individual's</p> <p>25 account with a non-Google website, Google does not 17:49:50</p> <p style="text-align: right;">Page 192</p>
<p>1 one has the user string, and I say go to town.</p> <p>2 Q. BY MR. BROOME: Well, yeah. Let's start with</p> <p>3 that. Does that allow you to uniquely identify a device?</p> <p>4 A. You know, in most cases, it doesn't. Again, you</p> <p>5 know, if you've got some trick I don't know about. But, 17:46:12</p> <p>6 you know, I would like to think that that is not enough.</p> <p>7 Q. Okay. So IP address plus user agent -- well,</p> <p>8 withdrawn.</p> <p>9 A. I mean, it's hard; right? Because the IP</p> <p>10 address will tell you like which internet cafe the 17:46:32</p> <p>11 person's at. Now you go to the cafe? Do you interview</p> <p>12 the people who work there? Do you learn more</p> <p>13 information? It's all part of context. It's really hard</p> <p>14 to pull out just one thing and say, you know, we're done</p> <p>15 here. 17:46:46</p> <p>16 Q. All right. So multiple people could share the</p> <p>17 same IP address and user agent; is that fair?</p> <p>18 MR. CROSBY: Object to the form.</p> <p>19 THE WITNESS: Yes. Yes.</p> <p>20 Q. BY MR. BROOME: In paragraph 47 -- I'm sorry, 17:47:02</p> <p>21 paragraph 42.</p> <p>22 A. Uh-huh.</p> <p>23 Q. You quote this Google document, and it says:</p> <p>24 "IP address can be very precise, equivalent to GPS for</p> <p>25 all intents and purposes, depending on the scenario." 17:47:33</p> <p style="text-align: right;">Page 191</p>	<p>1 receive the personally identifiable information</p> <p>2 associated with that site; correct?</p> <p>3 A. I don't know. If you're asserting that, assert</p> <p>4 that, but I actually don't know what Google receives.</p> <p>5 Q. Okay. Well, why did you include this point that 17:50:06</p> <p>6 User-ID itself qualifies as personally identifiable</p> <p>7 information if you're not sure whether Google actually</p> <p>8 receives that information?</p> <p>9 A. Because it does -- so what I'm saying in this is</p> <p>10 that -- we talked about this earlier, that Google could 17:50:22</p> <p>11 use this information. I just asked me whether they do.</p> <p>12 What Zervas is saying is that Google chooses not to, but</p> <p>13 that says nothing about whether Google could. And then</p> <p>14 see back to my discussions of chilling effects and</p> <p>15 possibilities of surveillance. 17:50:46</p> <p>16 Q. Okay. But you're not sure one way or the other</p> <p>17 whether Google actually receives the PII that is</p> <p>18 associated with an individual's account at a non-Google</p> <p>19 website?</p> <p>20 A. I am not, nor do I know whether they can infer 17:51:01</p> <p>21 that through other means.</p> <p>22 Q. All right. Let's go to 53.</p> <p>23 In 53 you say: "Based on my experience and</p> <p>24 consistent with the many internal Google documents I have</p> <p>25 reviewed that were apparently not considered by Professor 17:51:42</p> <p style="text-align: right;">Page 193</p>

<p>1 STATE OF CALIFORNIA) ss: 2 COUNTY OF MARIN) 3 4 I, LESLIE ROCKWOOD ROSAS, RPR, CSR NO. 3462, do 5 hereby certify: 6 That the foregoing deposition testimony was 7 taken before me at the time and place therein set forth 8 and at which time the witness was administered the oath; 9 That testimony of the witness and all objections 10 made by counsel at the time of the examination were 11 recorded stenographically by me, and were thereafter 12 transcribed under my direction and supervision, and that 13 the foregoing pages contain a full, true and accurate 14 record of all proceedings and testimony to the best of my 15 skill and ability. 16 I further certify that I am neither counsel for 17 any party to said action, nor am I related to any party 18 to said action, nor am I in any way interested in the 19 outcome thereof. 20 IN WITNESS WHEREOF, I have subscribed my name 21 this 19th day of July, 2022. 22 23 24  25 LESLIE ROCKWOOD ROSAS, RPR, CSR NO. 3462 Page 230</p>	<p>1 <u>X</u> Federal R&S Requested (FRCP 30(e)(1)(B)) – Locked .PDF 2 Transcript - The witness should review the transcript and 3 make any necessary corrections on the errata pages included 4 below, notating the page and line number of the corrections. 5 The witness should then sign and date the errata and penalty 6 of perjury pages and return the completed pages to all 7 appearing counsel within the period of time determined at 8 the deposition or provided by the Federal Rules. 9 <u> </u> Federal R&S Not Requested - Reading & Signature was not 10 requested before the completion of the deposition. 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 Page 232</p>
<p>1 IAN B. CROSBY, ESQ. 2 icrosby@susmangodfrey.com 3 July 19, 2022 4 RE: BROWN VS. GOOGLE LLC 5 JULY 18, 2022, BRUCE SCHNEIER, JOB NO. 5312337 6 The above-referenced transcript has been 7 completed by Veritext Legal Solutions and 8 review of the transcript is being handled as follows: 9 <u> </u> Per CA State Code (CCP 2025.520 (a)-(e)) – Contact Veritext 10 to schedule a time to review the original transcript at 11 a Veritext office. 12 <u> </u> Per CA State Code (CCP 2025.520 (a)-(e)) – Locked .PDF 13 Transcript - The witness should review the transcript and 14 make any necessary corrections on the errata pages included 15 below, notating the page and line number of the corrections. 16 The witness should then sign and date the errata and penalty 17 of perjury pages and return the completed pages to all 18 appearing counsel within the period of time determined at 19 the deposition or provided by the Code of Civil Procedure. 20 <u> </u> Waiving the CA Code of Civil Procedure per Stipulation of 21 Counsel - Original transcript to be released for signature 22 as determined at the deposition. 23 <u> </u> Signature Waived – Reading & Signature was waived at the 24 time of the deposition. 25 Page 231</p>	<p>1 RE: BROWN VS. GOOGLE LLC 2 BRUCE SCHNEIER, JOB NO. 5312337 3 E R R A T A S H E E T 4 PAGE____ LINE____ CHANGE_____ 5 _____ 6 REASON_____ 7 PAGE____ LINE____ CHANGE_____ 8 _____ 9 REASON_____ 10 PAGE____ LINE____ CHANGE_____ 11 _____ 12 REASON_____ 13 PAGE____ LINE____ CHANGE_____ 14 _____ 15 REASON_____ 16 PAGE____ LINE____ CHANGE_____ 17 _____ 18 REASON_____ 19 PAGE____ LINE____ CHANGE_____ 20 _____ 21 REASON_____ 22 _____ 23 _____ 24 WITNESS Date 25 Page 233</p>